

CLAIMS

What is claimed is:

1. A privacy screen for a display comprising:
 - a) a first uniaxially birefringent film for transmitting light received from the display that is linearly polarized along a display polarizing axis, the first birefringent film having a thickness d_1 and a retardation value R :
$$R = (n_e - n_o) d_1 / \cos \theta$$
$$\theta$$
 being the angle of light incident upon the screen from the display, and n_o and n_e being the refractive indices, respectively, along the ordinary and extraordinary axes of the first birefringent film, wherein d_1 is greater than 25 micrometers so that R is responsive to changes in θ ; and
 - b) a first polarizing film having a polarizing axis positioned to receive the linear polarized light transmitted from the first birefringent film.
2. The privacy screen of Claim 1 further comprising:
 - c) a second birefringent film for transmitting light received from the first polarizing film that is linearly polarized to the polarizing axis of the first polarizing film, the second birefringent film having a thickness d_2 of greater than or equal to 25 micrometers; and
 - d) a second polarizing film positioned to receive the linear polarized light transmitted from the second birefringent film, the second polarizing film having a polarizing axis.
3. The privacy screen of Claim 2 further comprising:
 - e) a third uniaxially birefringent film for transmitting light received from the second polarizing film that is linearly polarized to the polarizing axis of the second polarizing film, the third birefringent film being equivalent to the first birefringent film and having a polarizing axis.
4. The privacy screen of Claim 2 further comprising a hinge in order that the first birefringent film can be rotated and positioned to be adjacent to either the first polarizing film or the second polarizing film, depending upon which position is required to achieve the privacy effect for the display.

5. The privacy screen of Claims 1 or 2 wherein the first and second birefringent films exhibit birefringence in the visible and infrared regions of the electromagnetic spectrum.

6. The privacy screen of Claims 1 or 2 wherein the first and second birefringent films have $n_e - n_o$ values ranging from about 0.00002 to about 0.001.

7. The privacy screen of Claims 1 or 2 wherein the first and second birefringent films have thicknesses ranging from about 25 microns to about 1000 microns.

8. The privacy screen of Claim 2 wherein the polarizing axis of the first polarizing film is oriented at a first angle of 90° plus or minus 60° to the display polarizing axis and the polarizing axis of the second polarizing film is oriented at a second angle of 90° plus or minus 60° to the display polarizing axis.

9. The privacy screen of Claim 8 wherein the polarizing axis of the first polarizing film is oriented at a first angle of 90° plus or minus 15° to the display polarizing axis, the polarizing axis of the second polarizing film is oriented at a second angle of 90° plus or minus 15° to the display polarizing axis, the optical axis of the first uniaxially birefringent film approximately bisects the first angle, and the optical axis of the second birefringent film approximately bisects the second angle.

10. The privacy screen of Claim 8 wherein the polarizing axis of the first polarizing film is orthogonal to the display polarizing axis.

11. The privacy screen of Claim 10 wherein the polarizing axis of the second polarizing film is orthogonal to the display polarizing axis.

12. A privacy screen for a display comprising:

- a) a first biaxially birefringent film for transmitting light received from the display that is linearly polarized along a display polarizing axis, the first birefringent film having a thickness d_1 and a retardation value R_θ for light incident on the film at an angle θ measured with respect to normal that is approximated by the relationship below:

$$R_\theta \approx R_o [1 + \sin^2 \theta / 2n_i n_{avg}] ;$$

wherein the first biaxially birefringent film is characterized as having unit vectors a and b that define its film plane and a unit vector c that defines its normal;

$R_o = [n_b - n_a]d_1$ and is retardation of normal incident light;

- $n_{avg} = (n_a + n_b + n_c)/3$ = average index for the biaxially birefringent film; n_i is selected from the group consisting of n_a , n_b , and n_c to correspond to the unit vector (a, b, or c) that describes the vertical direction of the display; and
- 5 d_1 is greater than 25 micrometers so that R is responsive to changes in θ ; and
- b) a first polarizing film having a polarizing axis positioned to receive the linear polarized light transmitted from the first birefringent film.
- 10 13. The privacy screen of Claim 12 further comprising:
- c) a second birefringent film for transmitting light received from the first polarizing film that is linearly polarized to the polarizing axis of the first polarizing film, the second birefringent film having a thickness d_2 of greater than or
- 15 equal to 25 micrometers; and
- d) a second polarizing film positioned to receive the linear polarized light transmitted from the second birefringent film, the second polarizing film having a polarizing axis.
- 20 14. The privacy screen of Claim 13 further comprising:
- e) a third uniaxially birefringent film for transmitting light received from the second polarizing film that is linearly polarized to the polarizing axis of the second polarizing film, the third birefringent film being equivalent to the first birefringent film and having a polarizing axis.
- 25 15. The privacy screen of Claim 13 further comprising a hinge in order that the first birefringent film can be rotated and positioned to be adjacent to either the first polarizing film or the second polarizing film, depending upon which position is required to achieve the privacy effect for the display.
- 30 16. The privacy screen of Claim 13 wherein the polarizing axis of the first polarizing film is oriented at a first angle of 90° plus or minus 60° to the display polarizing axis and the polarizing axis of the second polarizing film is oriented at a second angle of 90° plus or minus 60° to the display polarizing axis.
- 35 17. The privacy screen of Claim 16 wherein the polarizing axis of the first polarizing film is oriented at a first angle of 90° plus or minus 15° to the display polarizing axis, the polarizing axis of the second polarizing film is oriented at a second angle of 90° plus or minus 15° to the display

polarizing axis, the optical axis of the first uniaxially birefringent film approximately bisects the first angle, and the optical axis of the second birefringent film approximately bisects the second angle.

- 5 18. The privacy screen of Claim 16 wherein the polarizing axis of the first polarizing film is orthogonal to the display polarizing axis.

19. The privacy screen of Claim 18 wherein the polarizing axis of the second polarizing film is orthogonal to the display polarizing axis.